

mary amino groups (column 4, lines 10 – 13). These primary amino groups are diazotized in a first stage (column 4, lines 35-37, column 5, lines 27 – 30).

However, in accordance with the rules of chemistry only primary amine groups can be converted to diazo-compounds. Consequently, in Linder, everything concerns the reaction of diazo compounds among themselves (column 5, lines 39 – 46) or possibly the substrate (which however is only assumed but not proved or supported by facts). Without such a pre-reaction no bonding is possible. Of course, a primary amino groups-containing substance is needed herefor but in no case is an amino group bonded directly to the substrate as it occurs in connection with the present invention. The then diazitized compounds (without primary amino groups) can, of course, also enter various reactions. The reference (Linder) however is concerned with a completely different method involving reactions quite different from those occurring in connection with the present invention.

Concerning the Linder patent, the Examiner has referred to the following sections which have been specifically carefully studied by the inventor and are commented as follows:

Column 5, lines 5 – 21: This section refers to a case where modifiers containing water soluble amphoteric and at the same time primary amino groups are used which then are diazotized under certain conditions with sodium nitrite in concentrations of 0.1 – 30 wt%. Of course, reactions of diazo compounds are known but the present invention is not concerned with such compounds and a direct reaction of an amino group with the substrate is not disclosed in this section either.

Column 8, lines 34 – 49: This section only describes in general how the cross-linking of the modifier with itself can occur in order to form an insoluble layer wherein of course the covalent chemical bond is best because it is the most stable bond. The section contains no hint to a covalent bond with a membrane substrate which would be characteristic for a direct reaction of a primary/secondary amino group with the imide group – as it occurs in accordance with the present invention.

Column 9, lines 43 – 68/column 10, lines 1 – 6: These sections are concerned with the application of multiple coatings. In a first stage, the already discussed diazo-coating is described which is followed by a reaction with for example cyanuric chloride which activates this layer for further amino coatings which then are bonded covalently to the first coating layer by way of the generally known cross-linking chemistry.

In summary, the Linder patent and the present application have only in common that the initial modifier can be the same if it contains primary amino groups (In the context of Linder, however, this is not the modifier but the compound from which the modifier is produced in a pre-stage).

In contrast to the present application, those primary amino groups must be diazotized in a pre-stage in order to become reactive so that they can be interlinked with themselves by covalent bonds. The possibility to bond, in an active diazotized state, with a membrane substrate is only alleged by the Lixaminer; there is no basis for this allegation; in fact, it is very unlikely that such bonds occur. But even if such an interpretation would be correct, it would not involve a reaction of an amino group with the membrane substrate (as in the present application), but the reaction of a diazo compound with the substrate. It is well-known that an amino compound cannot be equaled with a Diazo compound even if both contain nitrogen atoms. The Linder process is therefore different in principle and not comparable with the method according to the present invention.

But, furthermore, even if this difference, which must not be disregarded, is ignored and modifiers are used which contain exclusively secondary and tertiary amino groups (which corresponds to the definition of the amino modifiers of the present application), it is pointed out that in the Linder procedure nothing, absolutely nothing, would happen, whereas in the method according to the invention a covalent bonding of the modifier to the polyimide membrane can be established (many times proved). In the method according to the present invention, the direct bonding of the amino modifier is possible, but not in the case of the Linder procedure. It is well-known that only primary amino can be diazotized, but no secondary. The actual modifier of the Linder procedure consequently is not the amine but the diazo compound thereof. The allegation that the present invention is anticipated by the Linder patent is therefore extremely far-fetched or actually impossible to maintain.

Reconsideration is respectfully requested

Respectfully submitted,



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